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The chemistry of the deeper section of the TALDICE ice core.

Content

In the framework of the TALDEEP project, a new age scale for the deepest part of the TALDICE ice core was recently built by Crotti et al. (2021). This new chronology, named TALDICE-deep1, covers the 1438-1548 m depth interval spanning from 150 to 343 kyr BP. According to the isotopic profiles, below 1550 the climatic signal is not preserved and basal folding or stagnant ice phenomena have been proposed. In this work we show the complete high resolution profiles of chloride, nitrate and sulphate covering the bottom part of the Talos Dome ice core. The high resolution data were achieved by Fast ion Chromatography (FIC) with an average depth resolution of 2.0 cm all along the ice core. The full dataset can be used as a tuning tool for the different chronologies used for the TALDICE ice core in order to establish new tie points with other archives. In particular, by using the new TALDICE-deep1 chronology, we compare the chemical profiles of TALDICE with those from EDC, possibly obtaining information about post depositional processes occurring in the deeper sections of ice cores. An insight into the ice deeper than 1550 m will allow to look for the preservation of the climatic signal in this section, despite the hypothesis the stratigraphic order might be compromised.

References

Crotti, I., Landais, A., Stenni, B., Bazin, L., Parrenin, F., Frezzotti, M., Ritterbusch, F., Lu, Z. T., Jiang, W., Yang, G. M., Fourré, E., Orsi, A., Jacob, R., Minster, B., Prié, F., Dreossi, G., and Barbante, C.: An extension of the TALDICE ice core age scale reaching back to MIS 10.1, *Quaternary Sci. Rev.*, 266, 107078, <https://doi.org/10.1016/j.quascirev.2021.107078>, 2021.

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